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AN  
INAUGURAL ESSAY,  
ON  
THE DIFFERENT THEORIES,  
THAT HAVE BEEN ADVANCED  
ON  
THE SUBJECT OF THE PROXIMATE CAUSE  
OF  
CONCEPTION  
IN THE  
HUMAN FEMALE.

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By DANIEL NEWCOMB, A. B.

OF KEENE, NEW-HAMPSHIRE. 1851

MEMBER OF THE PHILADELPHIA MEDICAL SOCIETY.

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*"Velut unda supervenit undam."*

HORACE.

1851

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PHILADELPHIA.

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1806

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AN  
INAUGURAL DISSERTATION,

FOR

*THE DEGREE*

OF

DOCTOR OF MEDICINE,

SUBMITTED TO

*THE EXAMINATION*

OF THE

REV. JOHN ANDREWS, D. D. PROVOST, (ProTem.)

THE

TRUSTEES AND MEDICAL PROFESSORS

OF THE

*UNIVERSITY OF PENNSYLVANIA,*

On the 21st day of April, 1806.





TO

NATHAN SMITH. M. D.

*PROFESSOR OF MEDICINE*

AT

DARTMOUTH COLLEGE.

THIS ESSAY,

IS RESPECTFULLY DEDICATED

BY HIS

GRATEFUL PUPIL

THE AUTHOR.

THE HISTORY OF THE

REIGN OF

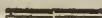
CHARLES THE FIRST

IN 1649

BY JOHN RICHARDSON

LONDON

## INAUGURAL ESSAY, &amp;c.



TO contemplate the ravages of time ; to mourn over the inevitable ruin to which all animated matter is incident, is not our subject. These " Night Thoughts," and the horrors which attend them, we leave for brighter scenes. Instead of observing the decay which awaits all the fairest of Nature's works, we shall dwell on the means of perpetuating and multiplying them.

No subject in physiology has engaged more attention among philosophers than the functions of the organs of generation. Among those who have turned their attention to them, may be reckoned the names of Aristotle, Pythagoras, Leewenhoeck, Buffon, Haller, Spallanzani, De Graaf, Harvey, Darwin, Cruickshank, Hunter, and Haighton.

These are but few of the writers that have held opinions more or less variant on this subject. These and many others have strenuously defended their respective theories, and most of them have had their zealous followers. Their opinions have succeeded each other like waves in a storm; each retiring to give way to others equally unstable. Every writer has been contented with less testimony in favor of his own allegations than of those advanced by others. Each theorist has fancied himself to have established an hypothesis when he has overthrown others. Like Caligula, who imagined that he had established a government over Great Britain, because he made a triumphal entry into Rome with some shells collected from her shores.

In this mysterious operation of Nature, by which living beings are kept from becoming extinct, I propose to trace the economy of vegetables as they approach to animals, and of animals as they approach to lordly man.

The willow, the myrtle, and many other species of vegetables can be propagated by slips cut from them, and stuck in the earth. In the animal kingdom the polypus can be cut in pieces and multiplied in the same manner. These appear to be nearly in the lowest grade of organized life.

The next grade appears to be that which contains many plants. Their stems support flowers that contain both male and female organs, in the same calyx. This class likewise comprehends all the animals that we usually denominate hermaphrodites. These animals, tho' endowed with compound organs, yet, require mutual assistance in propagating their species.

In the third denomination may be included, the plants whose generative organs, make the nearest approach to those of the human species. In this class may be included all trees and plants which present the organs of but one sex, in the same tree. The mulberry, and many plants come under this head. Of the animal kingdom, it in-

cludes all fishes, except a few of the class mammalia. It includes likewise many amphibious animals. In this last class the semen masculinum is placed in direct contact with the farina and ova of the female. With the vegetables the pollen is borne to the female product through the air—and that too, over wide rivers and extensive tracts of country. Some of the amphibious animals, such as the frog and toad, when experiencing the venereal impulse, resort to the stagnant pools for enjoyment. The male mounts on the back of the female, and embraces her vehemently for several days. While connected in this manner, they both emit a fluid. From the union of these, results the new animals. Much the same phenomena are observable among fishes. They quit the cold and boisterous ocean, for waters that are quiet and warm. Here the pair emit their fluids on the same spot.

The last division includes birds, quadrupeds, and man. In the males of this class, there is an apparatus for injecting semen into the females. And in the females, is an

apparatus for receiving it. But the manner in which it is disposed of afterwards, and the relation which its agency bears to that of the ova in forming the fœtus, are yet the subjects of enquiry.

The first hypothesis which I shall notice, is that of the celebrated Hippocrates. This writer supposed the existence of male and female semen, and that from the union of these, in the uterus, resulted the embryo. This opinion was likewise maintained by Empedocles, and in modern times, has, with some variation, been revived by the ingenious Buffon.

Another hypothesis was cherished by Pythagoras. This author, together with Aristotle, supposed the uterus to act the same part, in promoting the reproduction of the human species, as the earth does in the reproduction of vegetables. This has in substance been revived by the celebrated author of *Zoonomia*. This philosopher, however, does not, like the former, suppose the



femen masculinum to contain an embrion, but simply a living filament, endowed with capabilities of "irritation, sensation, volition, and association." This theory is much more refined than it was in ancient days, and has received all the embellishments that could be bestowed by genius and learning. This theory, I believe has received but little credit. I will however, make a few remarks upon it, which are obvious to all who are in the habit of studying this author's works, and familiar to those who have perused the strictures made upon them.

The "capabilities of irritation," &c. necessarily suppose the existence of sensorial power, and in consequence the filament is capable of being acted upon by the stimulus of the surrounding fluids. And must not these soon exhaust it? The same author tells us that the sensorial power is formed in the brain and spinal marrow; but the brain and spinal marrow are not yet formed, will not the filament then become dead?

Again, the manner in which this filament



is nourished, is beyond all comprehension. "This living filament," says our author, "by the stimulus of the surrounding fluids, into which it is received from the male, may bend into a ring, and thus form a tube." This phenomenon appears inexplicable even on his own principles. The stimulating fluid is applied to every part of the filament; how then can it be so long contracted in one direction as to form a ring? Indeed would not the principles, which he lays down, in the other parts of his work, lead us to suppose, that a violent contraction, in one direction, would soon be followed by as violent one in an opposite direction? But, suffering our imaginations to go so far as to suppose the filament to be formed into a ring; how is it to be formed into a tube? What is to prevent it from growing into a sphere, a cube, or a shapeless mass?

The frequent occurrence of extra-uterine foetuses cannot be explained on these principles. We may very rationally suppose that a foetus would very rarely escape from the uterus through the Fallopian tubes.

We now pass on to consider the doctrine first taught by Fabricius ab Aquapendentè, and afterwards, with some modifications, so ably advocated by Bonnet, Haller, Spallanzani, and Hunter. Fabricius made a number of experiments, by which he satisfied himself that he had discovered the embryo in the unimpregnated eggs of fowls. Spallanzani afterwards commenced a series of experiments on the spawn of frogs, and some other small animals of a similar species. By these he supposed that he had shewn the fœtus to exist in the female. And having seen in the ovaria, the spawn, capable of impregnation out of the body ; and contemplating the phenomena of extra-uterine fœtuses, very rationally concluded, that the semen is transmitted to those organs. And the most probable route through which it could pass, they supposed to be through the uterus and Fallopian tubes.

This theory was, for some time obscured by the discoveries of Leewenhoeck. The animalcules, which he discovered, in the

male semen made a deep impresson on the minds of Physiologists. They supposed them to be the human race in miniature. But the difficulty of accounting for the generation of hybrid animals, together with the discovery of similar animalcules, in most of the excretions of the human body, sunk it into obscurity. Then the theory of Haller resumed its former attraction, and was for many years taught in most of the schools in Europe.

To this opinion succeeded that, which was first publickly taught, by Dr. Johnson, in his system of Midwifery, in the year 1769, ....and several years afterwards strenuously advocated by an anonymous writer in a work entitled, “ Speculations on the mode and “ appearances of impregnation in the hu- “ man female.” These writers assert that the semen does not pass through the Fallo- pian tubes in going to the Ovaria; but that it is absorbed from the Vagina; carried into the circulation, and by the exhalant arteries deposited in the Ovaria.

A theory different from this, was first suggested by Dr. Dewees, lecturer on Midwifery in this city. For many years past this gentleman has taught it to his class, and lately published it to the world in an essay on superfœtation inserted in the Philadelphia Medical Museum.

This gentleman supposes that the semen is transmitted not through the absorbents and blood vessels, nor through the Uterus and Fallopian tubes; but through a set of vessels appropriated solely to the purpose, and going directly from the Vagina to the Ovaria.

The next hypothesis which I shall notice is now taught in this city by Dr. Chapman, in his lectures, and was first advanced by Dr. Haighton, lecturer on Physiology at Guy's Hospital in London. I shall deliver it in Dr. Haighton's own words.

“ The semen first stimulates the Vagina,  
 “ os uteri, cavity of the uterus, or all of  
 “ them.”

“ By sympathy the ovarian vesicles enlarge, project, and burst.”

“ By sympathy the tubes incline to the Ovaria, and having embraced them, convey the rudiments of the foetus to the uterus.”

“ By sympathy the necessary preparations are made for the formation and growth of the foetus. And——

“ By sympathy the breasts furnish milk for its support after birth.”

After viewing this ocean of hypothesis, we pass on to mention a few facts that appear tolerably well substantiated.

“ Ut rari nantes in gurgite vasto.”

The semen is absorbed, carried into the circulation, and ultimately deposited on the ovaria. And that it is, I shall infer from its indispensable agency in the ovaria, and secondly, from the improbability of its passing by any other route.

That conception takes place in the ovaria is abundantly proved by the cases on record, of fœtuses being found in them—Mr. Maurice gives an account of one in the London Philosophical Transactions, (No. 150) of a woman in whose abdomen, after death, he discovered a fœtus, about as large as a man's thumb, perfectly disconnected from all the surrounding parts. The right ovarium was enlarged—its investing membrane ruptured, and in every way appearing as if the fœtus had just escaped from its substance.

In the same work, (No. 257) we have another similar account by Dr. Fern. In the dead body of a woman who supposed herself to have been three months gone with child, he found the skeleton of a fœtus, lodged in the ovarium.

These are not solitary cases : they are but few of the many *facts* that have caused a pretty general belief that this process of conception commences in those organs.—And that the actual presence of the male



feed is indispensably necessary we infer from analogy. In frogs and fishes this phenomenon is most apparent. The deposits made by the females of these classes, unless effected in presence of the male, soon grows putrid, like dead animal matter. But, if made under opposite circumstances, millions of new living beings soon make their appearance. In these species there is no vagina, to receive the semen, nor any penis to inject it. The efficacy of the actual contact of the male semen and the ova is as evident as the noon-day's sun.

But it may be said that man is not a fish nor a frog, and that analogy is fallacious. But we would beg leave to reply, that the fallacy of this analogy is not great. The same muscular power that gives agility to this animal, gives graceful movements to the beautiful girl—the same nerves give them sensibility, the same blood is necessary to keep their vessels in motion, and the same air is necessary to oxygenate it—the bile, the urine, and fæces all bear the same part in their economy.

Indeed, the experiments of Haighton, even when taken by themselves do not disprove the fact for which we contend. The marks of conception, which he conceived to have taken place, in consequence of impressions made on the vagina, are not infallible. The observations of Blumenbach and Buffon certainly prove that the corpora lutea have been formed, when no semen has been applied to the vagina, to cause the local impression, to which he attributed, such wonderful powers—to which he attached so important a chain of consequences.

And indeed analogy would lead us to conclude that corpora lutea are no marks of conception. In the hen, and all other oviparous animals the ovum will be detached from the ovarium and expelled from the uterus without any irritation in the vagina. But it will be to all intents and purposes dead matter. It will neither keep sweet, and yield a chick in an elevated temperature, nor resist the attack of cold in a reduced one.



Sensible indeed would he make the vagina, os uteri and cavity of the uterus. To the semen he would seem to attribute wonderful power of exciting peculiar action; so that it will produce the Roman or aquiline nose of one father, the dwarfish or gigantic limbs of a second, and the fair or footy complexion of a third.

Having thus endeavoured to prove the necessity of actual contact between the semen and ova, I shall attempt to prove that it is effected in no other way than through the circulation.

1st. The semen does not pass to the ovaria through the Fallopian tubes. That this is true I infer from the situation of the uterus. This viscus is situated between the bladder and rectum, and of course liable to many changes of position. When the rectum is distended, the body and fundus uteri will be pressed forward, and the os tincæ will look towards the anus. When the bladder is distended the uterus will be pressed towards the perineum, and the os tincæ will be turned toward the symphysis pubis.—Again, in

women who have borne many children, the os tinæ projects outwards almost to the labia externa. By these impediments the urethra is prevented from coming into direct apposition with the orifice of the uterus.

But a late writer\* has asserted that the uterus has, by the assistance of its appendages, the power of adapting itself to the urethra. If the gentleman would demonstrate by dissection, that these parts have a structure, capable of exerting such energy, we should feel more satisfied than we now are.

Under this head might likewise be mentioned the effects that are brought about by penises that are vitiated in their structure. Morgagni mentions an instance of a man whose urethra came out on the dorsum penis someways behind the glans: and this man was a father.

\* Dr. P. Harrison. Vid. Med. Museum.

I infer it, secondly, from the unsuccessful efforts of anatomists to discover semen in the uterus post coitum. Harvey dissected a considerable number of does, bitches, and rabbits, with the express view of settling this point. De Graaf likewise made a considerable number of dissections, with rabbits, for the same purpose; but neither of them were able to detect any semen in the uterus or Fallopian tubes. Saumarez, likewise dissected for the same purpose, but never suspected that he saw any, except in one instance, and there he was not positive. He prosecuted his dissections under the influence of a theory that would have led him to notice every appearance of inaccuracy in the statements of those who published similar accounts before him.

I infer it, thirdly, from the occurrence of pregnancy during the existence of imperforate hymens, anomalous membranes, and adhesions consequent on inflammations seated in the vagina. Mauriceau has related a case of a woman who was de-

livered of a child, although her hymen had not been broken in coition. Ruysch, though no advocate for the absorption of semen, relates, that he was called to a woman in labor, whose hymen was imperforate. In addition to this, he discovered in the same woman an anomalous membrane that completely obstructed the canal of the vagina. This is one of the best cases of the kind on record.

That the semen does not pass to the ovaria through the Fallopian tubes, I infer, fourthly, from the occurrence of superfœtation. But lest I should seem endeavouring to establish contested principles by doubtful facts, I beg leave to cite some well attested cases.....

In Smellie's Midwifery, there is an account, tolerably satisfactory. A woman, five days after delivery of a full grown child, miscarried of a fœtus that appeared to be about four or five months old. There was no putrefaction, although it was still

born. It had no hair, nor any other mark that indicated a more advanced age.

In the London Medical and Physical Journal, No. 52, we find a well attested case, by Mr. Hope—In April 1800, he was called to a woman attacked with severe labor-pains, and as she supposed, in her seventh month of pregnancy. The pains gradually ceased; but, immediately afterwards she began to complain of a large painful tumor in the right hypogastrium. This she could never get removed. In November following, she discovered signs of recent impregnation, and was delivered of a living child, eight months afterwards. The child was of rather an unhealthy aspect, but the author believed it to be living at the time of publishing the account. Every thing went on well with the mother for a fortnight. She was then seized with a stercoraceous vomiting, and died.—On opening the abdomen he discovered the uterus about as large as an inflated calf's bladder. Within the cavity of the uterus he found a putrid foetus, apparently of the sixth or seventh month. The placenta was attached

to the fundus. The writer was particularly careful to ascertain that the fœtus was not extra-uterine, as the tumor appeared to indicate.

Doctor Dewees, in his essay on superfœtation, publishes a case or two that fell under his own observation. In 1799, he delivered a lady of a full grown boy. A few hours afterwards the lady was delivered of a small fœtus, which was evidently of a more tender age than the full grown child.

To the first and last of these cases it may be objected that the small fœtuses were conceived at the same time with the full grown children; and that their growth had been prevented by some unknown cause.

But are there not certain marks of age discoverable in fœtuses as well as in children? Are not their extremities gradually made more proportionate to their heads; and do not hairs shoot from the heads of those that have been borne their full time? These marks certainly are sufficient to distinguish the puny, but full grown child, from the lusty, thriving fœtus, suddenly deprived of life.

But to the second case that I have cited,



no such objections can be raised. The child born alive was evidently conceived after the other had attained its greatest magnitude. Of course, the semen could not in that instance have had a route through the uterus.

That the semen should be carried to the ovaria by the Fallopian tubes, and be by them returned to the uterus is imputing to them an economy not analogous to any other in the human system. It is true that there is sometimes a double action in the œsophagus, stomach, and other parts of the alimentary canal ; and perhaps in the lacteals, ductus communis choledochus, and urethra. But these inverted motions are performed only in disease.

The semen is not transmitted directly from the vagina, to the ovaria, by an appropriate set of vessels.

To those who believe in the existence of such vessels, we beg leave to remark, that none such have ever been demonstrated. It is unphilosophical to multiply the instruments by which natural processes are performed. “ *Nec deus interfit nisi dignum vindice nodi.*” The propriety of inferring the

existence of organs from the apparent necessity of their agency, will not justify any such inference in this case.

That such vessels would be superfluous, I shall attempt to prove, in considering the facility with which the semen is taken into the circulation, and conveyed to the ovaria, unchanged.

The thin cuticle with which the vagina is lined, seems very well calculated to favour this process. In this part of its structure, it bears a great resemblance to the lips and nostrils. The first of these readily absorbs the virus of lues, and the latter is readily infected by the matter of small pox.

The rugæ which lie in that canal appear to favour the idea of absorption. They enlarge the surface on which the semen is deposited, and on which the lymphatics are spread. And by offering such a surface are evidently calculated to answer the same purpose as the *valvulæ conniventes* in the intestines.

The slight degree of inflammation which Bell remarks as favouring the absorption of venereal virus, and mercury, exists in the



venereal orgasm. Perhaps I go too far in calling it an actual inflammation. But the term would not be grossly misapplied. Cruikshank thus describes it. "I obtained a rabbit, (in heat) and after killing her suddenly, by running a knife through her spinal marrow, proceeded to examine the organs of generation. They were turgid with blood, and black as ink."—And this state continues some days after coition, according to the observations of Haighton.

The semen when ejected from the urethra, soon liquefies, and by that means is readily presented to the patulous mouths of all the vessels that are spread in the vagina.

The semen is a mild, bland, fluid, in every way such an one, as we should suppose calculated to pass through the system, without occasioning much inconvenience. The sickness at stomach and vomiting, are such as we should expect, by reasoning a priori. These symptoms are much the same as are frequently occasioned by the injection of extraneous matter into the veins.

The strong digestive powers of the lymphatics, has frequently been urged as an

objection to this hypothesis. The smell of garlick in the breath, of spirits of turpentine in the urine of persons who have taken these medicines, and the smell of urine in the breath of patients afflicted with long continued strangury, are frequent occurrences. They certainly shew that the digestive powers of the absorbents are not equal to the task of assimilating all the matters which they take up.\*

The stomach, like the lymphatics, possesses wonderful powers of assimilation. But the experiments of Spallanzani afford ample proof that it does not possess the power of operating on living animals. Hence we may with some degree of certainty infer, by analogy, that the lymphatics have not the

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\* It has been frequently contested whether mercury be ever carried into the circulation. One well attested case may perhaps tend to satisfy those who are unsettled in their opinions on this head. Mr. Edward Johnson of Virginia, in prosecuting a dissection in this city since the close of this last course of lectures, discovered pure quick silver in various parts of the body. The globules were very evident, and amalgamated the gold coin that was presented to it.

power of altering living fluids, such as the semen is known to be.

The experiments of Spallanzani on the semen of the frog, evince that after extreme dilution it still retains its power. The diluting liquor which he used was water. We have endeavoured to prove that the blood produces as little change of the human semen, as water did in his experiments.

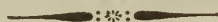
The semen, thus mixed with the blood, part of it passes through the hypogastric arteries, to be deposited on the ova. The exhalant extremities of the branches spread in the ovarium, appear well calculated for this purpose. The frequent occurrence of hydatids in these organs show that these exhalants can readily be excited to uncommon action.

But how the semen acts when it has thus reached its place of destination is yet unknown. On this point we are not satisfied ourselves; much less are we prepared to satisfy others.

To suppose, with Spallanzani, that the semen of an ass should so stimulate the ova of a mare, as to cause the long ear to shoot

from the head of the mule, and that the semen of a white man should so stimulate the ovum of a negro wench as to give a yellow hue to the skin of the child—is no less difficult, than to suppose, with Buffon, that all these effects are produced by the union of organic molecules.

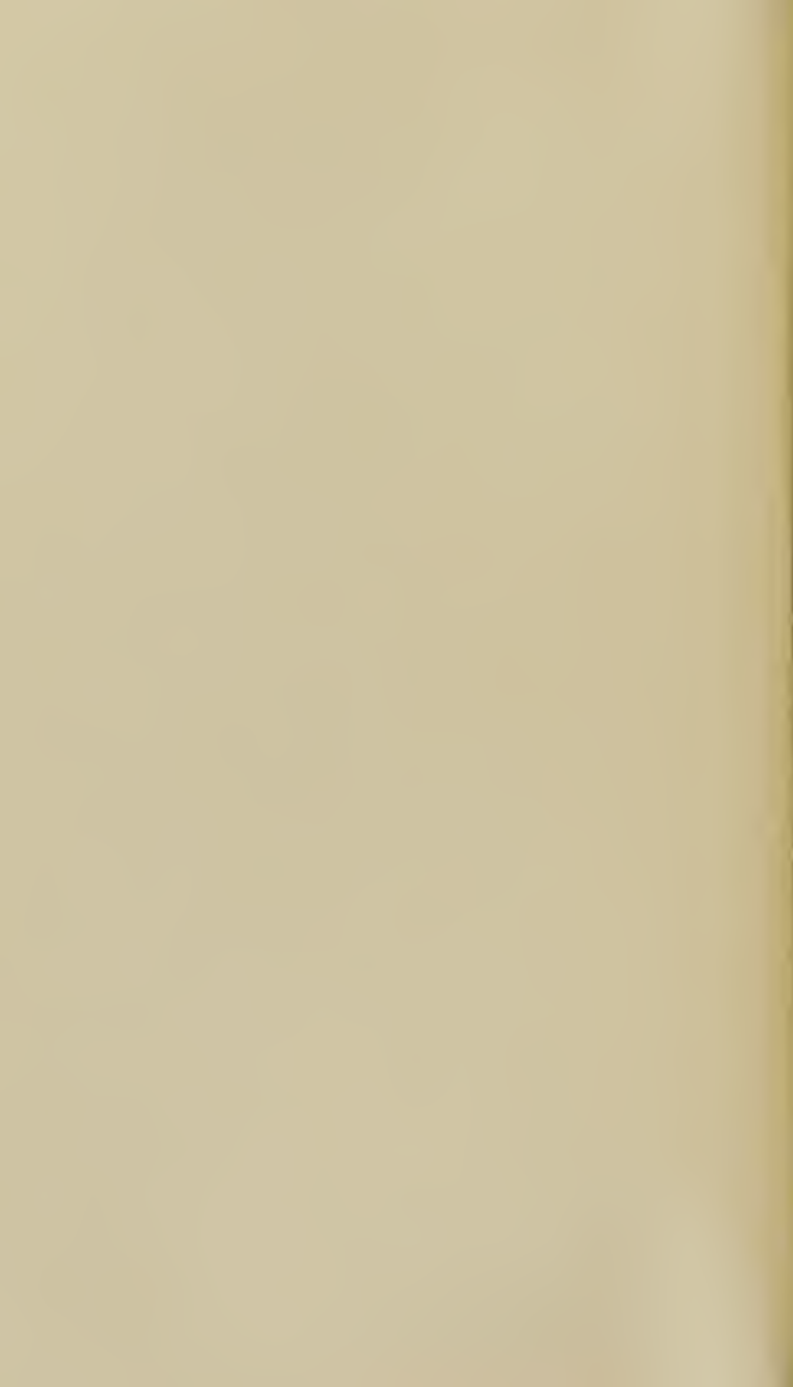
The ovum after fecundation is seized by the fimbriated extremities of the Fallopian tubes, carried into the uterus, and there retained and nourished till the time of parturition.



“ *Tempus quod cogit, defendit.*” The indispensable necessity of completing this essay in a prescribed time, must be my justification for obtruding it on the public in this imperfect state.

To the professors of medicine in this University, I return my sincere thanks for the instruction I have received from their lectures.—Drs. Dewees and Chapman will also please to accept my acknowledgments for the assistance which they have afforded me in their department.





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